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IS INVASIVE CANCER A HYPHAL FUNGUS?

Cancer cells and yeast cells have a similar anaerobic energy metabolism. As a result of stress, they change into aggressive and invasive hyphal forms that behave in the same way and look remarkably alike. Medical researchers and practitioners would be well advised to consider this close connection.

by Walter Last
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Conventional medicine regards cancer as a multitude of diseases with different causes and treatments. But what if they all have the same underlying cause and similar treatments, as suggested by Dr Tullio Simoncini?¹ Dr Simoncini believes that cancer is mainly due to *Candida albicans*, the most common and aggressive fungus in the human body, and that an effective cure is to bathe a tumour in a solution of sodium bicarbonate. Here I want to show that there are even more reasons to suspect a causal relationship between *Candida* and cancer than suggested by Dr Simoncini.

A basic difference between normal body cells and fungal cells is with their energy metabolism. Normal body cells produce energy by oxidising nutrients in the citric acid cycle to carbon dioxide and water. Fungi cannot do this. They produce their energy in an anaerobic way, or without oxygen. Fungi use mainly sugars and other simple carbohydrates and obtain their energy by converting these into lactic acid. This is very wasteful and produces only about five per cent of the energy that would be produced in the citric acid cycle. This process generates large amounts of lactic acid, which makes the body overacid and causes mineral deficiencies, inflammations and pain.

Cancer cells have exactly the same kind of anaerobic energy metabolism as fungi. However, cells in tumours have different degrees of oxidative energy blockage. Therefore, the malignancy of a tumour is equivalent to the degree of oxidative energy blockage. In other words, the more anaerobic the energy production of a tumour is the more malignant it is. But there is a difference in the energy production between cancer cells and fungi.

As I pointed out in my article "Cancer Therapy – A New Direction"², the oxidative energy metabolism of cancer cells can be restored and these cells can be reconverted into normal body cells by eliminating the cancer cells' microbes or their toxins that block the oxidative metabolism. This cannot be done with fungi, although it is possible to produce fungi with an oxidative energy metabolism—such as Zell Oxygen®, a live aerobic yeast made from *Saccharomyces cerevisiae*—in a way that is antagonistic to *Candida albicans*.

I suspect that this reversion of cancer cells is only possible as long as these cells live like a colony of yeast cells inside a tumour. Therefore, I regard a tumour as the equivalent of a colony of yeast cells. When a yeast colony is stressed by overgrowth or other factors that restrict nutrient supply, it tries to expand and seek better conditions. This causes many of the yeast cells to transform into invasive hyphal fungus cells (see my article in NEXUS 23/01). These may then also form new colonies and fungal mycelia in distant organs.

Cancer cells behave in exactly the same way. When a tumour is stressed by facing overcrowding or a shortage of hormones or nutrients, or when attacked with surgery, chemotherapy, radiotherapy or other inflammation-causing methods, then the relatively harmless yeast-like tumour cells transform

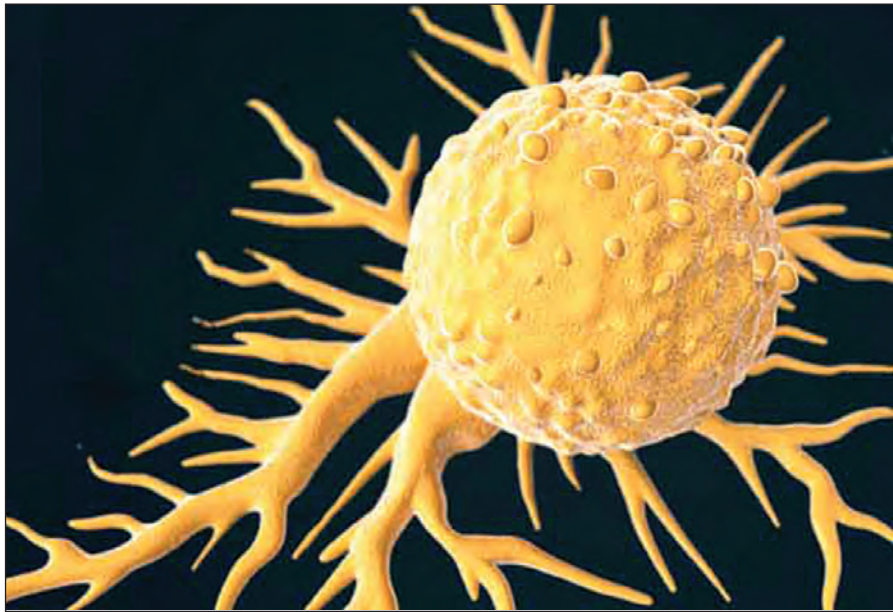


Figure 1: An invasive cancer cell
(Source: OnlyMyHealth.com, <http://tinyurl.com/hld5cej>)

themselves into invasive migrating cancer cells that eventually form more dangerous metastatic tumours in distant organs.

With this, cancer cells do not only have the same anaerobic energy metabolism as fungi but they also behave in the same way when under pressure, and invasive metastatic cancer cells look exactly like hyphal fungus cells. Compare the following sets of images showing aggressive cancer cells and similar-looking hyphal fungus cells.

In figure 1, you see such an invasive cancer cell which has grown hyphae or closely related structures called pseudohyphae similar to the fungal hyphae shown in figure 2.

Breast cancer cells vary from yeast-like cells inside tumours to cells with a few long filaments and cells with dense hyphae-like protrusions, as in figure 3. This is very



Figure 2: Fungal hyphae
(Source: Wikipedia.org, <http://tinyurl.com/hq3k8o3>)

similar to the hyphal *Candida* cells shown in figure 4. (By the way, the displayed colours are not genuine but are due to staining.)

The lung cancer cell in figure 5 has developed hyphae-like burrowing legs with which it can anchor itself in the tissue and also suck out nutrients. The hyphae release enzymes that break down the tissue into nutrients that the cancer cells or fungi can easily absorb. Similar formations can often be observed in skin cancers and sometimes breast tumours. When these are killed with black salve, they fall out after a week or two, and one can see their complete structure including hyphae.

Most amazing for me is the metastatic cancer cell in figure 6. Its shape does not seem to be any different from the invasive hyphal

fungus in the lungs shown in figure 7.

It is difficult for me to understand how mainstream researchers can claim that cancer cells are not at all like fungi but are something completely different. I remember a famous saying: "If it looks like a dead rat and smells like a dead rat, then it probably is a dead rat."

Of course, initially there is still a difference between cancer cells and fungi because cancer cells are body cells degenerating into fungal cells while conventional fungi have traditional genetic characteristics.

Other Cancer-*Candida* Connections

In light of the strong similarity between metastatic cancer cells and invasive fungal cells, it is not surprising that in recent years there have been dozens and perhaps even hundreds of research publications comparing lung cancer with fungal infections of the lungs. One of these papers, "Fungal Infection Mimicking Pulmonary Malignancy" concludes: "Fungal infection can present with clinical and radiological features that are indistinguishable from thoracic malignancy, such as lung nodules or masses."³ In almost all cases, tumours in the lungs are assumed to be due to cancer and no tests are made to check for fungi as a primary or contributing cause.

The German professor Meinolf Karthaus watched three children with leukaemia unexpectedly go into remission after receiving a triple antifungal drug cocktail for their "secondary" fungal infections. He led a research team that in 2006 published the results of six further cases where leukaemia disappeared after antifungal therapy. There were actually many more cases but, in these, antileukaemia therapy was continued in addition to antifungal therapy. In the reported six cases, antileukaemia therapy was stopped when starting

antifungal therapy for chronic disseminated candidiasis (CDC). In this article, the authors express their surprise and they speculate:

"Inadequate treatment is, however, usually associated with a poor outcome because of disease progression or early relapse, and it is surprising that despite minimal antileukemic treatment, all of our six patients with acute leukemia and CDC are still alive and in complete hematologic remission (follow-up between 19 months and 14 years). Therefore, one is prompted to speculate whether CDC, as a chronic inflammation, might have positively affected the continuous complete remission."⁴

I find it incomprehensible how medical professionals can speculate that the highly deadly CDC may be the cause of these leukaemia cures rather than the anti-*Candida* therapy used to eliminate CDC. Recently I had an email communication from one of the leukaemia patients of Professor Karthaus. He wrote that the professor had not mentioned antifungal treatment to him. Therefore, it seems that Professor Karthaus has not yet come to a deeper understanding of his antifungal experiences.

In addition, much cancer research also shows that not only the lungs but also the liver and spleen are frequently damaged by aggressive candidiasis. This shows up especially during leukaemia treatment. If patients did not have severe candidiasis as a pre-existing condition, then they acquired it as a result of chemotherapy.

A long time ago, before I became aware of the link between *Candida* and cancer, I also had a surprise when a patient with stomach cancer had his big tumour disappear in a few months after he developed a craving for benzoic acid and ingested a lot of it. Benzoic acid is a common food preservative and a strong fungicide.

Milton White, MD, believed that cancer is a "chronic, intracellular, infectious, biologically induced spore (fungus) transformation disease". He found fungal spores in every sample of cancer tissue that he studied.⁵

Medical research shows that curcumin, the active ingredient in turmeric, is very effective against cancer cells in many different cancers, such as bowel, breast, brain and pancreatic cancer. One research paper states: "Curcumin has been shown to inhibit the proliferation and survival of almost all

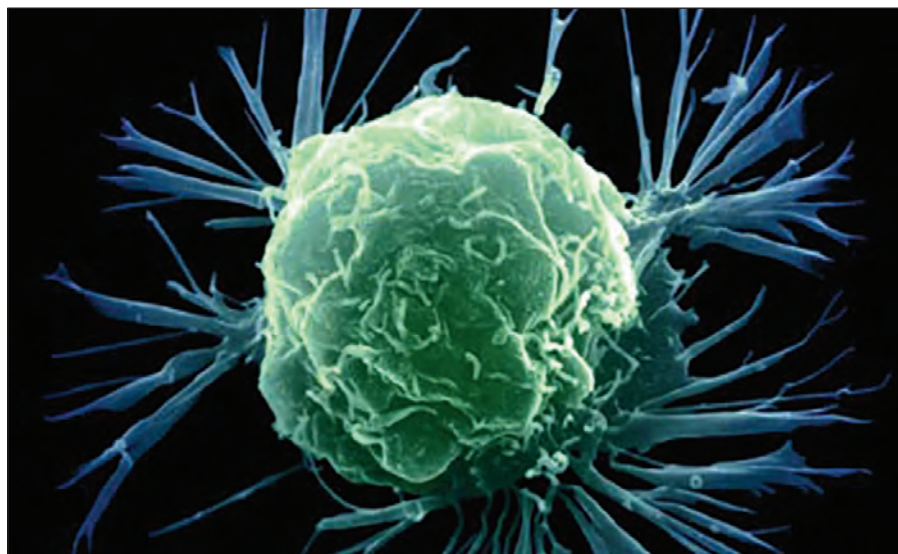


Figure 3: A breast cancer cell seen through an electron microscope.
(Source: Science Photo Library, <http://www.sciencephoto.com>)

types of tumor cells."⁶ Another paper lists a large range of diseases in which curcumin has been shown to be effective in clinical trials. These include cancer, cardiovascular disease, arthritis and many other inflammatory conditions. The article states: "How a single agent can possess these diverse effects has been an enigma over the years, both for basic scientists and clinicians."⁷

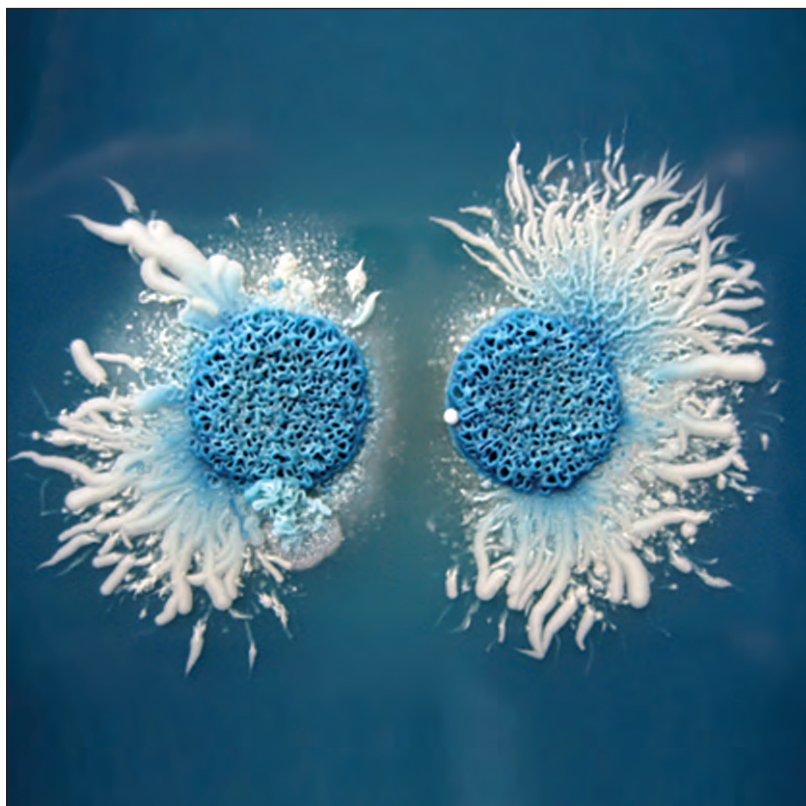


Figure 4: Hyphal *Candida* cells
(Source: Roberts Lab, School of Aquatic and Fishery Sciences, University of Washington, <http://tinyurl.com/zcvfbgu>)

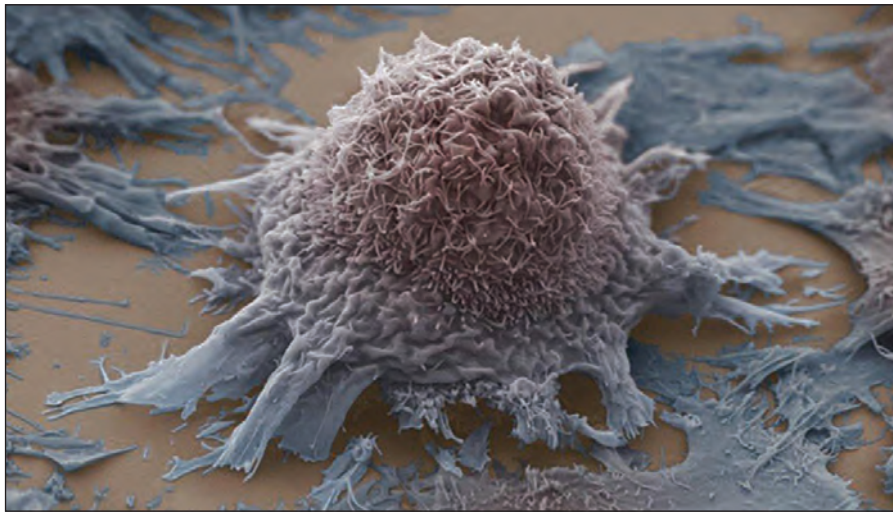


Figure 5: Lung cancer cell
(Source: Cancer Research UK, <http://tinyurl.com/h2999nw>)

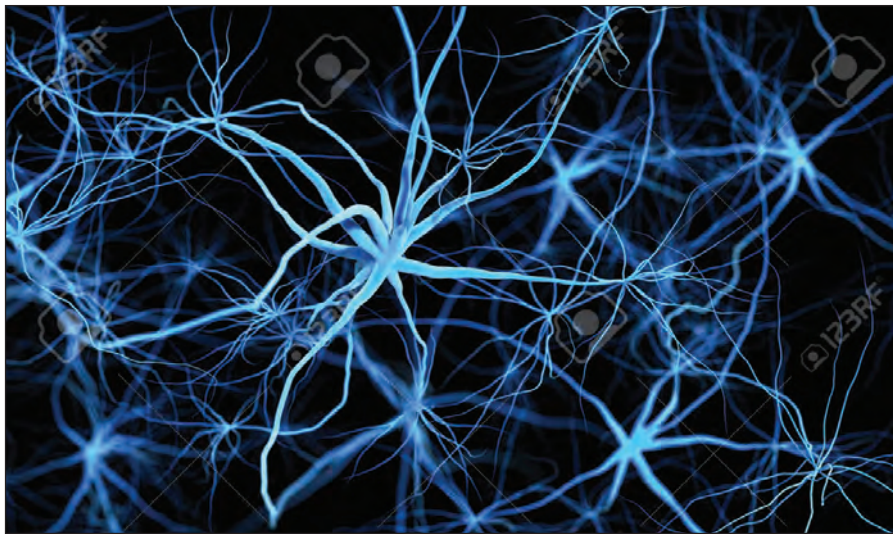


Figure 6: Metastatic cancer cell
(Source: <http://www.123rf.com>)



Figure 7: Invasive hyphal fungus in the lungs
(Source: Getty Images, <http://tinyurl.com/h2yyp4j>)

However, there is an explanation which is expressed in this title: "Curcumin as a promising antifungal of clinical interest".⁸

According to my understanding, all the mentioned diseases against which curcumin is effective have *Candida* and other fungi as a primary or contributing cause.

The antifungal article states that curcumin was a more potent remedy against some fungi than fluconazole, the main medical fungicide. It was very effective against *Candida albicans*! Yet in none of the research papers did I see any mention that the strong fungicidal properties of curcumin may have something to do with its anticancer effects.

There is not much research into the relationship between antibiotic use, the main cause of *Candida* overgrowth, and cancer, but a paper on breast cancer concludes: "Use of antibiotics is associated with increased risk of incident and fatal breast cancer."⁹

There are many more articles and scientific research papers on the Internet about the close association between cancer and fungi.

A very encouraging recent breakthrough is the publication in the prestigious journal *Nature* of an article showing that hyphal *Candida* and other fungi have been found in all investigated cases of Alzheimer's disease. These fungi were not only in different parts of the brain but also in blood vessels.¹⁰

This can give us hope that after decades of ignoring the role of antibiotics and fungi in the causation and treatment of cancer, there will now be some research money made available for exploring this link.

In the meantime, cancer patients already have the choice to use antifungal therapies in natural medicine instead of the methods of mainstream medicine that do not address the underlying causes and so leave the door open for conventionally treated cancers to come back.

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Is Invasive Cancer a Hyphal Fungus?

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About the Author:

Walter Last is a retired biochemist, research chemist, nutritionist and natural therapist based in Australia. His books are available at <http://tinyurl.com/4xkdgc>.

Walter Last is a long-time contributor to NEXUS. His most recent articles, "How to Manage the Immune System", "Pyroluria and *Candida*: Twin Causes of Modern Diseases" and "More Energy and Less Disease with Vitamin C and MSM", were published in NEXUS 23/01, 22/02 and 21/02 respectively.

For more information, articles and advice, visit Walter Last's website <http://www.health-science-spirit.com>.

Endnotes

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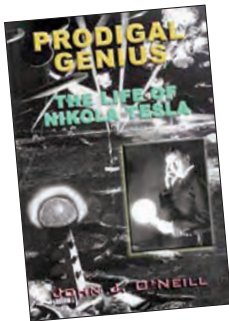
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Nikola Tesla



PRODIGAL GENIUS The Life of Nikola Tesla

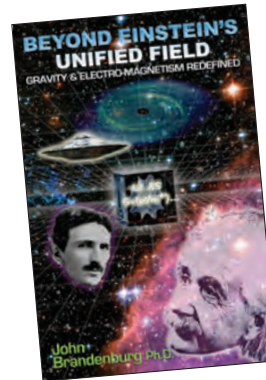
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